GUIDELINES FOR PACKAGING WASTE MANAGEMENT IN HUMANITARIAN OPERATIONS

July 2023

South Tangerang, Banten, Indonesia. Bird's Eye View of a Landfill. Photo credit: Tom Fisk.

This document was prepared by the Joint Initiative's secretariat as part of its ongoing commitment to promoting more responsible and sustainable packaging practices. This document does not purport to reflect the opinions or views of the Joint Initiative partners.

JOINT INITIATIVE FOR SUSTAINABLE HUMANITARIAN ASSISTANCE PACKAGING WASTE MANAGEMENT

TABLE OF CONTENTS

1. INTRODUCTION

The partner survey conducted by the Joint Initiative for Sustainable Humanitarian Assistance Packaging Waste Management[1] (JI) in April 2022 revealed that in many humanitarian contexts, management of waste from humanitarian assistance is left to local authorities and communities to handle and—in the absence of waste-management systems—ends up being buried or burnt openly. This creates local pollution and environmental degradation and poses a risk to human and animal health. The open burning of waste (in particular plastic) contributes significantly to climate change[2] and releases toxic gases.[3]

The JI Packaging Baseline Assessment report showed that 32% of packaging materials used to deliver food and non-food items are made of plastic.[4] To ensure sustainable management of the waste generated by humanitarian organizations, enhanced cooperation and information-sharing are necessary. The JI responds to this by providing guidance on sustainable packaging waste management. Not only will sustainable waste management lead to positive impacts on the environment and human health, but using a circular economy approach to waste management can also strengthen livelihoods.

2. AIM OF THE DOCUMENT

Addressing the environmental impact of packaging waste from the delivery of food and non-food items is crucial as the volume of humanitarian aid and relief efforts continues to increase globally. This document aims to help humanitarian organizations implement sound packaging waste-management strategies and emphasize the negative effects of improper packaging waste-management practices on human health and the environment.

The primary objectives of these guidelines are as follows.

- **Reduce environmental impact.** This document aims to minimize the environmental footprint of packaging waste generated during humanitarian operations by adopting management practices that are less harmful to human health and the environment based on the waste-management hierarchy. By following these guidelines, the sector can contribute to environmental conservation, protect ecosystems, and reduce pollution.

- **Promote resource efficiency.** The guidelines encourage the efficient use of packaging materials, emphasizing the reduction of waste generation and the reuse of packaging wherever possible. By optimizing packaging choices, the humanitarian sector can conserve valuable resources and reduce costs.

[1] The Joint Initiative is funded by USAID's Bureau for Humanitarian Assistance and brings together a consortium of 24 humanitarian stakeholders to reduce the negative environmental impacts of humanitarian work, particularly by tackling the issue of packaging waste. The initiative supports the humanitarian community to address the problem of packaging waste in a holistic way and aims at promoting greater coordination and standardization within the humanitarian community on packaging sustainability, and more broadly, procurement. It acts as a platform for knowledge-sharing, by documenting humanitarian organizations' experiences and lessons learned and sharing these through webinars and case studies.

[2] In 2019 alone, the production and incineration of plastic waste added an estimated 850 million metric tons of greenhouse gas emissions to the atmosphere, equal to the emissions from 189 five-hundred-megawatt coal power plants (Center for International Environmental Law. 2019. *Plastic and Climate: The Hidden Costs of a Plastic Planet* (https://www.ciel.org/wp-content/uploads/2019/05/Plastic-and-Climate-FINAL-2019.pdf).

[3] Toxic gases include dioxins, furans, mercury and polychlorinated biphenyls (better known as BCPs).

[4] Based on analyzing 6.7 million metric tons of food and non-food items distributed by 13 organization in 2021.

- **Ensure safe conditions.** The guidelines focus on maintaining high standards of safety in handling and managing (including reusing, repurposing, and recycling) packaging waste. Proper waste-management practices help prevent the spread of diseases, safeguarding the health and well-being of both aid workers and beneficiaries.

3. DOCUMENT OVERVIEW

This document emphasizes the importance of reducing packaging materials and prioritizing refusal and reduction over recycling due to the challenges of collection and recycling in areas where humanitarian operations take place. To reduce packaging waste, it is important to choose packaging-free alternatives, advocate for suppliers of packaging materials to reduce packaging, eliminate single-use plastics, optimize the size of the packaging, and enable packaging to be reused or repurposed using innovative designs.

Following the waste-management hierarchy, this document also provides comprehensive guidelines to ensure sound management of packaging waste reuse and repurpose, recycling, and disposal in humanitarian operations. Figure 1 illustrates a decision tree that guides humanitarian organizations to select the appropriate method to manage their packaging waste in humanitarian operations. The decision tree prioritizes packaging reuse and repurposing over recycling and disposal.

However, some reuse and recycling practices can have unintended negative consequences that are highlighted in this document, so it is important to thoroughly clean and sterilize any packaging before it is reused or repurposed. Additionally, it is important to assess the capacity of waste-management facilities to safely recycle packaging waste to ensure minimal impacts on human health and the environment.

In addition, Humanitarian organizations must assess the capacity of recycling facilities to ensure safe recycling processes. The World Food Programme (WFP) developed the Recycling Company Assessment Checklist for Hazardous and Non-Hazardous Waste to be used as a general guidance for evaluating recycling facilities and can be adapted based on contexts and waste types.

Finally, collaboration among humanitarian organizations and governments, private waste-management facilities, and packaging suppliers is needed to plan efficient packaging waste-management strategies. Humanitarian organizations play a critical role in ensuring packaging waste is managed properly by waste-management facilities. Governments can create policies, regulations, and incentives to encourage waste-management practices such as collection, while packaging suppliers can help drive sustainable packaging design by developing and promoting more eco-friendly materials.

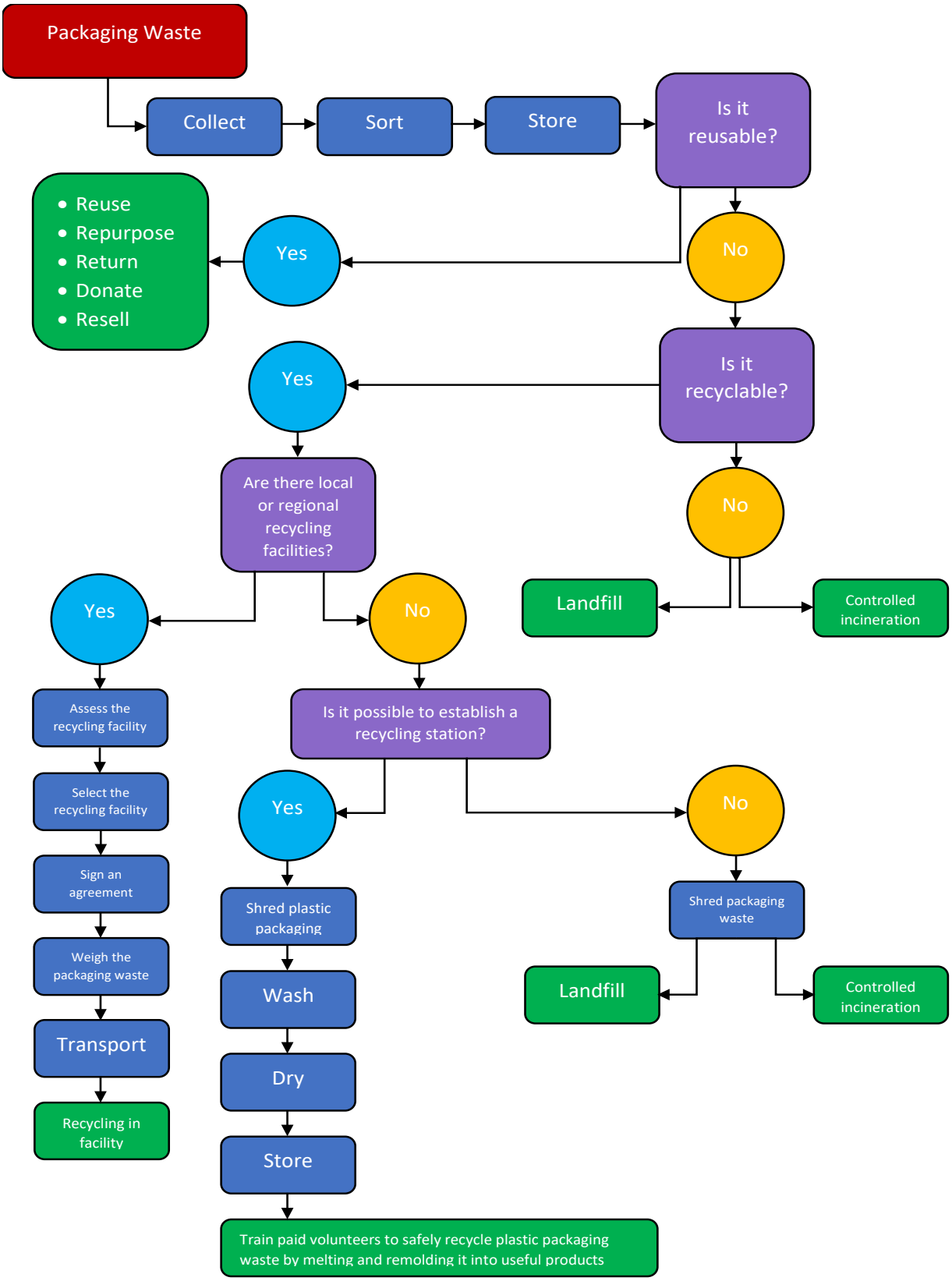

Figure 1. Waste-Management Decision Tree

4. HUMANITARIAN PACKAGING WASTE-MANAGEMENT HIERARCHY

Humanitarian packaging refers to any material used to protect, contain, or transport food and non-food items in humanitarian interventions that are discarded after use. This material can include cardboard, plastics, and metal packaging materials.

A sound management strategy for humanitarian packaging waste should follow the 5 Rs (refuse, reduce, reuse/repurpose, recycle, responsible disposal) waste-management hierarchy illustrated in Figure 2 to reduce waste, conserve resources, and minimize any harmful impacts on the environment.

- **Refuse.** The first R is to refuse packaging that is unnecessary or harmful to the environment. This includes single-use plastics and products with excessive packaging (i.e., packaging that does not serve a particular function and would not damage articles if it were it to be removed).
- **Reduce.** The second R is to reduce the amount of waste generated by optimizing the size of packaging to reduce packaging material and avoid shipping air.
- **Reuse/Repurpose.** The third R is to reuse or repurpose packaging materials as much as possible. *Reuse* refers to the process of reusing packaging for its initial purpose, while *repurpose* refers to the process of reusing the packaging for a different purpose, without going through any kind of process as it would in recycling (e.g., repurposing cardboard boxes into toys for children).
- **Recycle.** The fourth R is to recycle, when possible. It is important to follow local recycling guidelines and properly sort materials following the guidelines provided in this document.

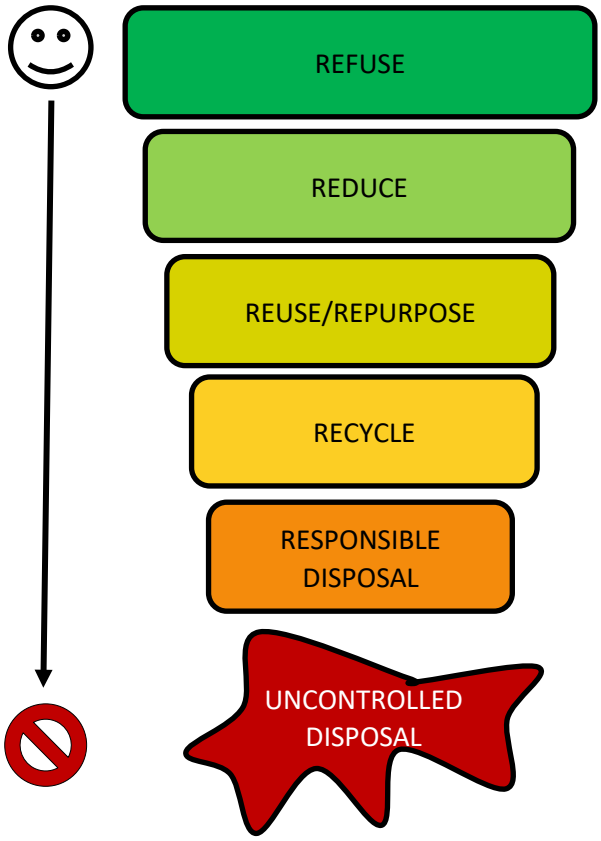

Figure 2: Humanitarian Packaging Waste Management Hierarchy

- **Responsible disposal.** The fifth R is to ensure proper disposal of packaging waste in landfills and incinerators.

By following these steps, humanitarian organizations may avoid, as much as possible, uncontrolled disposal such as open-burning, disposal in water bodies, or leaving packaging waste in nature.

5. SOUND PACKAGING WASTE MANAGEMENT IN HUMANITARIAN CONTEXTS

Reducing the amount of packaging at the source is the most effective method for minimizing packaging waste. This involves, for example, eliminating unnecessary packaging; reducing the quantity, weight, or thickness of packaging materials; optimizing the size of the packaging; and using alternative materials without compromising the quality and security of products during shipment.

When humanitarian assistance generates packaging waste, implementing waste-management strategies is essential to avoid uncontrolled disposal and minimize the harmful impacts of packaging on human health and the environment.

The following sections are the steps to be taken by humanitarian organizations, governments, or waste-management companies, to implement sound packaging waste-management strategies.

5.1. PRETREATING PACKAGING WASTE

Pretreating refers to the process of preparing packaging waste materials for reuse, repurposing, recycling, or other treatments, by reducing its size and avoiding contamination with food, chemicals, or substances.

5.1.1. COLLECTING

The first step for packaging waste management is to establish an effective waste-collection system. Creating such systems can be an opportunity to raise awareness and build capacity for waste management, both among humanitarian staff and local communities. Collecting packaging waste can be carried out by humanitarian organizations that use paid community volunteers, or by waste-management companies.

Key considerations for humanitarian organizations to establish a collection system are as follows.

- Estimate the quantity of packaging waste to determine the collection method and frequency.
- Establish collection points and provide collection bins and storage areas: identify collection points such as households and food aid distribution points and provide appropriate sizes of waste-collection bins (containers) and storage areas for different types of materials.
- Determine the collection method: waste can be collected from containers using a vehicle or a trolley, reverse vending machines,[5] or manual take-back systems[6] (if these exist).
- Establish a regular packaging waste collection schedule that is convenient for the community and ensures that waste is collected in a timely and efficient manner.
- Use incentives such as cash or vouchers, and provide training to collection volunteers on proper

[5] Reverse vending machines are machines used to temporarily store waste. Some of these machines are available in the market with a built-in rewarding system
[6] Manual take back systems can be used with incentives to encourage beneficiaries to bring back waste

packaging waste collection and sorting, as well as health and safety protocols.

- Regularly monitor and evaluate the waste-collection system: this is important to identify areas for improvement and ensure that the system is operating effectively.

5.1.2. SORTING

Sorting packaging waste is an important step in proper waste management to enable reuse, repurposing, and recycling. This can be done with the help of trained and paid community volunteers and informal waste collectors. Some tips for the appropriate sorting packaging include the following.

- Check the national and waste-management facilities' guidelines for recycling and waste collection to determine which materials can be recycled and how they should be sorted.
- Sort out the different packaging materials:
  - Sort packaging waste into different categories such as paper, cardboard, plastics, metal, and composite material.[7]
  - Separate the different types of plastics based on the ASTM International Resin dentification Coding System (RIC)[8], or as per the recycler's requirement
  - Remove labels and stickers to facilitate the recycling process, because these items are usually made from different materials and are not recycled in the same way.
  - Separate soft (films) from hard plastics.
  - Sort packaging by color to facilitate the recycling process. For instance, separate transparent from colored plastic bottles, which may be more difficult to recycle.
- Compress and flatten cardboard boxes and other bulky items to save space in storage and make it easier for collection volunteers to transport.
- Consider separating reusable materials such as plastic containers or cardboard boxes that can be used for storage.

5.1.3.STORING

Storing packaging waste properly is an important part of waste management, as it helps in reducing odors, preventing litter, and facilitating the recycling process. Some key considerations for storing packaging waste are the following:

- If a storage area is not available, coordinate with the government or other humanitarian organizations

[7] Composite material is material that is produced from two or more constituent materials (e.g., metallized laminate sachets).
[8] The ASTM International Resin Identification Coding System.

to use a shared storage area.

- Use designated storage areas (for large quantities of waste such as cardboard boxes) and containers (for smaller quantities of waste) for different types of waste.
- Keep storage containers clean and dry to prevent odors and pests.
- Store packaging waste in a secure and enclosed area, to prevent litter and deter animals/pests.
- Protect packaging waste from direct sunlight and consider storing indoors, particularly during extreme weather conditions, to prevent damage and reduce the risk of litter.
- Monitor the level of packaging waste stored, and schedule waste collection as needed to prevent overflow and maintain a clean and organized storage area.

5.2. REUSING AND REPURPOSING PACKAGING WASTE

Reusing and repurposing packaging waste is to be prioritized over recycling on the condition that the reused or repurposed item will eventually be collected and recycled or properly disposed of at the end of life. Reusing and repurposing packaging helps the environment in the following ways.

- Prevents packaging waste from ending up in landfills or oceans.
- Saves the energy needed to produce new packaging materials or recycle packaging waste.
- Helps to conserve natural resources such as trees, oil, and minerals that are used to make new packaging materials.

The JI compiled a list of humanitarian packaging reuse, repurposing, and recycling initiatives to promote shared learning among humanitarian organizations. See the JI resource: Options for Humanitarian Packaging Reuse, Repurposing, and Recycling.

5.3. REVERSING LOGISTICS

Reversing logistics is an additional step that can be added to the packaging waste-management hierarchy. *Reverse logistics* refers to the process of returning, donating, or reselling packaging waste to individuals, groups, or businesses that can safely reuse, repurpose, or recycle packaging materials. It aims to maximize the value and impact of humanitarian aid while minimizing waste and environmental harm. In the humanitarian context, this involves coordination among humanitarian organizations, logistics providers, government agencies, and local communities.

The choice of using reverse logistics must be assessed by humanitarian organizations based on the availability and capacity of individuals, groups or businesses to safely reuse, repurpose or dispose of packaging waste. The following subsections offer some guidance for packaging waste return, donation, and reselling.

5.3.1. RETURNING PACKAGING WASTE

This refers to a process where humanitarian organizations return packaging waste to their manufacturer or supplier for responsible recycling or disposal. When possible, returning packaging waste to the manufacturer is an important step in reducing the amount of waste that ends up in landfills or oceans. The choice of using this method is to be assessed by humanitarian organizations based on the location and capacity of manufacturers to safely recycle or dispose of packaging waste, as well as the financial implications of this service.

5.3.2. DONATING/RESELLING PACKAGING WASTE

Donating or reselling packaging waste is a way to give packaging materials that would otherwise be thrown away a second life. It refers to giving or reselling the material to organizations, individuals, or businesses that can reuse or repurpose it. These processes can help reduce waste, save resources, and provide a low-cost option for those who need packaging materials. Here are a few examples of how packaging waste can be donated:

- Donating cardboard boxes and Polypropylene (PP) woven bags to local shops or households for use in storage, and high-density polyethylene (HDPE) containers (jerrycans) to transport water.
- Donating packaging material to a recycling center that accepts specific materials and can recycle them properly.

Before donating or reselling packaging, humanitarian organizations need to consider the health and environmental risks that are associated with packaging reuse. For example, some plastic packaging is designed to be used only once, and others may degrade under extreme weather conditions or exposure to high temperatures. In addition, plastic packaging generates microplastics when not well preserved, which causes health risks and harm to ecosystems. For more details, refer to *Section 6: The Impact of Improper Packaging Waste Reuse, Repurpose, and Recycling on Human Health and the Environment*.

Donating or reselling branded packaging may also pose a reputational risk to humanitarian organizations if the materials are not properly managed. Humanitarian organizations may not have control over how the packaging is being reused or presented, which could lead to confusion or misrepresentation of their operations. To mitigate this risk, organizations may take steps to prevent the unauthorized donation or reselling of their branded packaging. This could include implementing policies and procedures to ensure that their packaging materials are properly reused, recycled, or disposed of, as well as monitoring the resale market to identify potential unauthorized sellers.

5.4. RECYCLING PLASTIC PACKAGING WASTE

When packaging reuse or repurpose is not possible, recycling packaging waste is important to reduce the amount of waste sent to landfills, incinerated, left in the environment, or burnt. Recycling packaging waste also conserves the resources used to make packaging materials.

In addition, recycling packaging waste can also have economic benefits, such as reducing the cost of waste disposal, creating jobs in the recycling industry, and improving the livelihoods of informal waste collectors and volunteers.

It is often challenging to identify local or regional recycling facilities during emergency responses. Internet research and collaboration with governments, humanitarian organizations, civil society organizations, and local and regional suppliers may be useful to obtain the necessary information. The JI, in collaboration with the WREC Project, is mapping local recyclers in several countries where humanitarian operations are ongoing. See the Joint Initiative / WREC Waste Management Facilities Mapping.

Humanitarian organizations must assess the capacity of recycling facilities to ensure safe recycling processes. The WFP developed an assessment form to be used as a general guide for evaluating recycling facilities and can be adapted based on contexts and waste types. See the WFP's Recycling Company Assessment Checklist for Hazardous and Non-Hazardous Waste.

Humanitarian organizations may choose to conduct the recycling of plastic packaging in small on-site workshops (for example, in refugee camps). To ascertain the effectiveness of carrying out such activities, an evaluation based on the country's context, packaging waste materials, and available infrastructure must be made. The steps to recycle packaging plastics safely on-site are described in the sections that follow.

5.4.1. SHREDDING PLASTIC PACKAGING WASTE

After collecting and sorting plastic packaging waste, shredding is the process of reducing plastic packaging waste into smaller pieces or fragments to make it easier to handle, transport, store, and recycle. Shredding plastic waste also gives it a higher market value so then it can be sold to facilities to use as a raw material to produce new plastic products. Shredding plastic packaging waste can be managed by humanitarian organizations, when possible, or by waste-management facilities.

Mechanical shredding of plastic packaging waste is recommended in humanitarian response settings, when available, because it is relatively inexpensive and can handle a wide range of plastic waste materials. The process involves feeding plastic waste into a shredder or granulator machine, which cuts the waste into small pieces using sharp blades or cutting teeth.

The viability of shredding plastic packaging waste should be assessed based on the type and quantity of waste, availability of shredding machines, the machine's price and operating costs, and the availability of energy to power the shredding machine, which may be challenging in rural locations.

5.4.2. WASHING AND DRYING PLASTIC PACKAGING WASTE

After shredding, washing is the process of cleaning the plastic packaging waste to remove dirt, debris, and contaminants such as chemicals, oils, and other pollutants. Waste washing aims to prepare the waste for recycling, as contaminated plastic waste can be difficult to recycle and can damage recycling equipment.

Plastic packaging waste can be washed in a series of tanks or machines that use water and, if needed, detergents, to remove contaminants. Washing by hand is recommended in humanitarian settings by mobilizing paid workers from the local community. Workers must be trained to safely handle plastic-

packaging waste and wash it using water-saving tools such as water-filled barrels, a hose equipped with a water-saving nozzle, or washing with safe reused water. Given the context of humanitarian assistance, it is important to assess the viability of washing the waste in water-stressed countries.

After cleaning the different types of plastic-packaging waste, drying is the process of removing moisture to prepare for recycling or other purposes. Drying prevents mold growth, reduces the weight of the material, and ensures the material can be processed efficiently. Plastic packaging waste can be dried by applying a stream of air generated by fans or blowers, or by simply spreading the packaging plastic waste in a well-ventilated area and allowing it to air dry naturally.

5.5. CONTROLLING INCINERATION

Waste incineration is a process of burning waste materials at high temperatures to convert them into ash, gases, and other byproducts. When managed properly following sound guidelines,[9] incineration is a better alternative than open-burning packaging waste or leaving it in nature. Humanitarian organizations should work with national or private incinerators to find alternatives to properly dispose of packaging waste when reusing, repurposing, or recycling the material is not possible.

The waste-incineration process involves several stages, including waste storage and preparation, combustion, heat recovery, and air pollution control. The waste is first stored and prepared for incineration, typically by shredding or crushing it into small pieces. The waste is then fed into the incinerator, where it is burned at high temperatures in the presence of oxygen.

The heat generated by the incineration process can be used to generate steam, which is then used to drive turbines to generate electricity. The byproducts of waste incineration include ash, which is collected and disposed of in the landfill, and gases such as carbon dioxide, nitrogen oxides, and sulfur dioxide, which are treated to reduce their impact on the environment.

Overall, waste incineration is a complex process that requires careful management and monitoring to ensure it is conducted safely and efficiently, with minimal impacts on the environment and human health.

5.6. LANDFILLING

A landfill is a waste-disposal facility that has been permitted and regulated by local, state, or national authorities to accept and manage specific types of waste materials. It is subject to regular inspections and monitoring to ensure compliance with the regulations and standards. These inspections may cover a range of areas, including waste storage, leachate management, air and water quality, and general operations.

Landfills employ a range of technologies and practices to reduce the environmental impacts of waste disposal. Some of the key features include the following.

- **Liners**. Sustainable landfills typically use liners made of clay or synthetic materials to prevent waste materials from contaminating the surrounding soil and groundwater.

[9] According to the Industrial Emissions Directive (IED) (EU 2010), incineration must be at least 850 degrees Celsius (°C) for a minimum of 2 seconds to avoid the formation of very toxic gasses and long-term pollution in soil, water, and air.

- **Leachate collection systems.** Sustainable landfills also use leachate-collection systems to capture and treat the liquid that is generated as waste materials decompose.

- **Methane capture.** Sustainable landfills are designed to capture methane gas that is produced by the decomposition of organic waste materials. This gas can be used to generate electricity or heat.

For further details on waste management including incineration and landfilling, refer to the Waste Management Handbook for Peacekeeping Operations and Field-Based Special Political Missions, The Department of Operational Support, 2022

6. IMPACT OF IMPROPER PACKAGING WASTE REUSE, REPURPOSE, AND RECYCLING ON HUMAN HEALTH AND THE ENVIRONMENT

Packaging waste management, like any industrial process, has potential health and environmental hazards that need to be managed properly to minimize risks. Humanitarian organizations should assess the recycling process in waste-management facilities to ensure the safety of workers in the facility and avoid harming the environment (See the WFP's Recycling Company Assessment Checklist for Hazardous and Non-Hazardous Waste.) Here are some examples of the health and environmental hazards associated with packaging waste management.

- The accumulation of combustible packaging waste, such as cardboard, in warehouses of humanitarian organizations and recycling facilities, can be a **fire hazard,** especially if improperly stored or handled.

- During the cardboard recycling process, **dust can be generated**, which may contain harmful substances such as paper fibers, adhesives, and other contaminants. Workers in cardboard-recycling facilities can be exposed to this dust, which can lead to respiratory problems or eye irritation.

- Like any industrial process, recycling generates **wastewater, which may contain harmful chemicals**, such as inks, dyes, and other additives.

- Recycling equipment can be powered by electricity, which can pose a **risk of shock or electrocution** if not used correctly.

- Tin cans may contain **residual amounts of chemicals** or food products that can be released into the air during the recycling process. Workers could inhale these substances, and hazardous chemicals can also contaminate the soil or water sources.

- The machinery used for packaging recycling can generate considerable **noise levels,** which can be harmful to workers' hearing if not properly controlled.

- Based on the packaging material and recycling method, recycling could **consume a significant amount of energy.**

- Workers involved in the recycling process are at risk of getting **cuts from sharp edges** or being

trapped in machinery if proper safety equipment is not used.

Humanitarian organizations must assess the impact of packaging reuse and repurposing. Examples of practices that may pose a risk to the environment and human health include the following.

- **Reproposing PP woven bags for flood protection.** PP woven bags can be repurposed as building blocks of dykes to help prevent water from entering homes or buildings and can protect personal property. The process requires the PP woven bags to be 1) filled with sand, 2) strategically placed/piled up to ensure stability; and 3) covered with soil that would be compacted to stabilize the structure and prevent the PP woven bags to be in direct contact with water. This type of barrier can be a solution for seasonal floods where appropriate soil coverage of the PP woven bags is guaranteed. However, PP woven bags are not designed to withstand rushing floodwater or to be left/exposed in direct contact with water, because they might pose a risk to the ecosystems due to the generation of microplastic during its degradation.

- **Reusing polyethylene terephthalate (PET) bottles.** Due to the thin plastic layer of this packaging, wear and tear on the bottle from reuse or repurpose can create cracks and scratches in the surface where more bacteria can grow, which causes risks to human health due to the spread of diseases.[10]

7. CONCLUSIONS AND RECOMMENDATIONS

REDUCING PACKAGING IS IMPORTANT BECAUSE RECYCLING IS VERY CHALLENGING IN THE HUMANITARIAN CONTEXT

Refusing and reducing packaging is to be prioritized over reuse, repurposing, and recycling. Reducing the amount of packaging materials is a more effective approach because of the challenges in packaging collection and recycling in countries where humanitarian operations take place.

Relevant tips for reducing packaging are as follows.

- Choose packaging-free alternatives, such as buying products in bulk or using refillable containers.

- Advocate for suppliers of packaging materials to reduce packaging and use eco-friendly and strong materials that can be reused.

- Optimize the size of packaging to minimize the total quantity of packaging materials needed to deliver food and non-food items.

PACKAGING CAN BE REUSED OR REPURPOSED USING INNOVATIVE DESIGNS

In addition to reducing packaging, reusing and repurposing it is also an important part of sustainable packaging design. Innovative packaging design can help make this possible. Humanitarian organizations need to consider the additional costs that may result from the innovative redesign of packaging.

[10] 'We All Do It, but Is It Actually Safe to Reuse Plastic Water Bottles?', Metafact, (*ScienceAlert* 21 March 2021)

By working with packaging suppliers, here are a few ways packaging can be reused or repurposed through innovative design.

- Design packages that can be reused or repurposed easily by turning them into new products, such as storage containers or toys.
- Create packaging with modular components that can be disassembled and reassembled into new designs.
- Use durable materials and design packaging that can last beyond its initial use.
- Develop packaging that can be easily cleaned and sterilized for reuse.

SOME REUSE AND RECYCLING PRACTICES CAN HARM HUMAN HEALTH AND THE ENVIRONMENT

While reuse, repurposing, and recycling can be important aspects of sustainable packaging design, keep in mind that some practices can have unintended negative consequences. For example, reusing and repurposing packaging products may pose health risks, especially if the packaging previously contained hazardous materials. This is why it is important to thoroughly clean and sterilize any packaging that is reused. For food packaging applications, the material must always be approved to come into direct contact with food products.

Recycling can also have negative environmental impacts if it is not performed correctly. For instance, recycling materials may require significant amounts of energy and resources, and the process may release harmful emissions into the air, soil, or water. In addition, it is important to assess the capacity of waste-management facilities to safely recycle packaging waste following processes that minimize the impact on human health and the environment.

To promote safe and sustainable reuse and recycling practices, it is important to be mindful of the materials and processes involved, follow best practices for handling and disposing of waste, and stay informed about emerging technologies and regulations related to sustainable packaging design.

COLLABORATION AMONG HUMANITARIAN ORGANIZATIONS AND WITH THE DONORS, GOVERNMENTS, PRIVATE WASTE MANAGEMENT FACILITIES, AND PACKAGING SUPPLIERS IS NEEDED TO PLAN EFFICIENT WASTE MANAGEMENT STRATEGIES

Packaging waste management in the humanitarian sector is limited due to a lack of infrastructure; resource constraints including funding, equipment, and human power; and the rapid response and transient nature. Rather than expecting to find a "quick and easy" solution, humanitarian organizations are recommended to work together and collaborate with the various stakeholders towards better management of their packaging waste. The following list includes the examples of the different roles of stakeholders.

- Humanitarian organizations play a critical role in ensuring packaging waste is managed properly in disasters or emergencies. They can work with local or national governments and private waste-management facilities to identify the most effective and sustainable solutions. In addition, they can work with other humanitarian organizations that are present in the country to combine their

packaging waste and share information on available local and regional waste management facilities.

- Donors provide financial resources that enable humanitarian organizations to implement effective waste-management strategies. In addition, donors can support monitoring and evaluation efforts to assess the effectiveness of waste-management strategies in humanitarian operations.

- Waste-management facilities may have the expertise and resources needed to manage packaging waste at scale. They can help design and implement sound waste management plans, including recycling and recovery programs.

- Governments can create policies, regulations, and incentives to encourage sustainable packaging design and waste-management practices such as collection. They can also provide funding and support for research and development of innovative waste reduction and recovery technologies.

- Packaging suppliers, as well as suppliers of food and non-food items, can help drive sustainable packaging design by developing and promoting more eco-friendly materials, reducing packaging waste through design, and collaborating with other stakeholders to implement effective waste-management practices. See the JI's compendium of best practices – Managing Packaging Waste Sustainably: Lessons from Humanitarian Organizations.

JOINT INITIATIVE
FOR SUSTAINABLE HUMANITARIAN ASSISTANCE PACKAGING WASTE MANAGEMENT

LEARN MORE AND GET INVOLVED

- Visit our webpage: https://tinyurl.com/Joint-Initiative
- Subscribe to our newsletter: https://tinyurl.com/JInews-subscribe
- Follow us on LinkedIn: https://tinyurl.com/Joint-Initiative-LinkedIn
- Contact the project team: Joint.Initiative@icf.com